Epitomes

Important Advances in Clinical Medicine

Pediatrics

The Scientific Board of the California Medical Association presents the following inventory of items of progress in pediatrics. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers or scholars to stay abreast of these items of progress in pediatrics that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Pediatrics of the California Medical Association and the summaries were prepared under its direction.

Reprint requests to Division of Scientific and Educational Activities, California Medical Association, PO Box 7690, San Francisco, CA 94120-7690

Hepatitis B Vaccine

THERE ARE SEVERAL viral agents that may infect the liver in humans and produce hepatitis. These include hepatitis A, or infectious hepatitis, hepatitis B (HBV), referred to in the past as either serum hepatitis or Australian-antigen hepatitis, and a third form produced by the interaction of HBV and another small virus called the δ-particle, which by itself is unable to cause disease. In addition, there are cases of hepatitis that are not A, not B and not δ for which specific laboratory methods of identification are not yet available. These are diagnosed by exclusion and called "non A-non B."

The only vaccine currently available is for HBV; it is a preparation of virus surface particles purified from human plasma and inactivated by a procedure designed to render noninfectious all known types of virus including that which causes the acquired immunodeficiency syndrome, human T-lymphotropic virus type III. Studies with the vaccine have shown that antibody is produced in 80% or more of those who receive the series of three doses and that adequate antibody levels correlate with protection from infection. The vaccine is recommended only for selected segments of the population.

The behavior and frequency of HBV infection varies in different parts of the world and in different subgroups within a country. In China, Southeast Asia and parts of South America and Africa, 5% to 15% of the population acquire the virus at birth or shortly thereafter and have a high risk of chronic hepatitis, cirrhosis or primary hepatocellular carcinoma. Infection in Western Europe and Australia occurs principally among adults and has a much lower prevalence and less of a risk for sequelae. In the United States, the prevalence of HBV infection is about 5% among the general population, but much higher and rapidly increasing among sexually promiscuous young adults who use intravenous drugs or live under crowded, unsanitary conditions. It is estimated that 6% to 10% of these groups become ongoing carriers, that 25% of the carriers progress to have cirrhosis and many die of chronic liver disease or cancer each year.

HBV prophylaxis is available as immediate but temporary passive immunization in the form of a high-titer-antibody immunoglobulin called hepatitis B immunoglobulin or regular pooled immunoglobulin containing a lower titer of antibody to HBV (regular immunoglobulin) and the active long-term protection obtained from hepatitis B vaccine. The immunoglobulin is used for postexposure protection and the vaccine for both preexposure and postexposure prophylaxis. Adverse reactions with the vaccine are few and consist mainly of pain at the site of inoculation. There are insufficient data to predict the total duration of antibody persistence but it appears to be in excess of four years.

Vaccine Administration

Primary immunization includes three doses of vaccine given intramuscularly, with the second and third following the first by an interval of one and six months, respectively. Those at significant risk of HBV infection who should receive the vaccine include

- Health care workers;
- Users of illicit injectable drugs;
- Contacts of HBV carriers: household, sex partners, institutional;
- Hemodialysis patients, recipients of possibly HBV-infected products;
- Homosexually active men;
- International travelers, others considered at righ risk, and
- Those with accidental percutaneous or sexual exposure (hepatitis B immunoglobulin plus vaccine).

The use of HBV vaccine in newborns delivered of HBV-carrier mothers is discussed in the June 1984 issue of this journal.

ELI GOLD, MD
Sacramento, California

Chin J: Prevention of hepatitis B in infants born to HBsAg-carrier mothers. West J Med 1984 Jun; 140:933-934

Hepatitis B vaccine: Evidence confirming lack of AIDS transmission—Immunization Practices Advisory Committee (ACIP). MMWR 1984 Dec; 33:685-687